

ABSTRACT OF THE DISCLOSURE

A periodic structure is to be successively formed over an extensive area with a uniaxial laser beam. Such method includes irradiating a uniaxial laser beam near an ablation threshold to a surface of a material; and executing an overlapped scanning on the irradiated region, so as to cause an ablation by interference between an incident beam and a surface scattered wave along the material surface; increasing the scattered wave; causing an interference at an interval equal to a wavelength of the laser beam, to thereby cause spontaneous formation of a periodic structure. The periodic structure can be made to have a different ripple spacing by changing an incident angle of the laser beam to the material surface. When the laser incident beam has an angle, the ripple spacing can be changed by changing a scanning direction.